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25 March 1963

MEMORANDUM FOR : Deputy Director (Research)

SUBJECT : Dr. Charyk Memorandum to You on Satellite Reconnaissance System Evaluation

1. I have discussed this subject, including the above communication and its many predecessors, with Art Lundahl. He had intended to let the matter rest.

2. As soon as the NRO folk in the Pentagon can spare some time from the current LANYARD, T.A.T, M-2 and E-6 evaluation problems, a discussion involving NRO, NPIC, and OSA people will be held to try and define the technical problem and propose solutions. The biggest problem seems to be that there are almost as many sometimes conflicting definitions of the technical problem as there are people involved.

3. This may be redundant information for you, but let me just say that the following is the history and current practice on the CORONA program. In the summer of 1959 we had good evidence of film breakage in the first attempted camera payload launch. These troubles persisted and a so-called "Autumn Leaves" committee consisting of [redacted] then of SSD, myself, [redacted] of Lockheed, [redacted] of Itek, [redacted] of Eastman Kodak, and a man from General Electric, was formed to get the problems defined and solved. The name "Autumn Leaves" came from a phenomena that was found in tests which we had made, i.e., acetate base film in a high vacuum low temperature environment became as brittle as leaves in November.

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4. In April of 1960 all of our troubles seemed to go away with the introduction of mylar film base material; except that we still did not recover the capsule. This was finally done in August after which we dissolved ourselves as a committee. However, we did cause a permanent group of three: two from here (one being our man at [redacted] and one from SSD to be responsible for reviewing and approving all changes made in the system and to point out needed improvements. This became known as the Configuration Control

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Handle via [redacted] Control System

Board now supplemented by one from NRO; and with the introduction of MURAL supplemented by the LMSC group known as Systems Engineering and Technical Direction.

5. By early summer of 1961 after the 26th attempt in the series, we had four reasonably successful missions and NPIC was sending people to Rochester for a "quick look" at quality as the original negative came off the machines. At the present time if we have a priori knowledge of some in-flight malfunction, people from LMSC and Itek are called in to assist Eastman Kodak and NPIC in this quick look. This has been the case if the orbit is highly eccentric, when we had CORONA-discharge problems and radiation problems. If some difficulty is discovered in the "quick look" about which we suspected nothing, Itek and LMSC people are called to Rochester immediately if needed by NPIC people on the scene.

6. Whether or not the "quick look" shows up any faults experts from NPIC, Itek, LMSC, NRO, OSA, and occasionally SSD, meet at NPIC for a detailed examination of product about a week after recovery. This is usually done on duplicate, but can be and has been repeated, if necessary, when original negatives arrive here. Results of this are reported in normal circumstances at subsequent SETD meetings and NPIC publishes its views in their mission report.

7. All of the above is done rather subjectively with actual measurements being limited to rather small samples. The intent is to obtain a gross sort of evaluation quickly to determine measures needed for the next launch. Although some arguments can be made for improvement in detailed procedures, I find this a pretty satisfactory arrangement.

8. This does not serve another kind of need, however; that is to answer quantitatively the questions on absolute level of quality, and do system innovations actually realize expected level of improvement.

9. The type of analyses needed for this purpose is quite detailed and lengthy, requires highly complex and specialized equipment, and should be done by competent people with a good knowledge of the system operation and limitations and able to diagnose symptoms as to causes. Such analyses cannot be expected to provide short term solutions on a launch to launch basis. They are very useful, however, as a first time or once in a while basis on present systems,

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for new systems, and for evaluation of expected step improvements in present systems.

10. Unfortunately, these two kinds of evaluations and the tools and talents needed for each have been scrambled together.

SIGNED

EUGENE P. KIEFER
Technical Analysis and Evaluation Staff
(Special Activities)

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